UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/041,006	01/07/2002	Andrew Darrow	ORT-1565	7744

7590 07/09/2003

Philip S. Johnson, Esq.
Johnson & Johnson
One Johnson & Johnson Plaza
New Brunswick, NJ 08933-7003

EXAMINER
MOORE, WILLIAM W

ART UNIT	PAPER NUMBER
1652	5

DATE MAILED: 07/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/041,006	DARROW ET AL.	
	Examiner	Art Unit	
	William W. Moore	1652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *17-20* is/are pending in the application.

4a) Of the above claim(s) *19* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *17,18 and 20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *17,19 and 20* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *3* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Preliminary Amendment

Applicant's Preliminary Amendment A, Paper No. 4 filed January 7, 2002, has been entered, canceling claims 1-16 and 21-24 and providing a reference at line 1, page 1, of the specification to the parent application serial No. 09/386,653, which has issued on October 1, 2002, as U.S. Patent No. 6,458,564, made of record herewith.

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. §121:

I. Claims 17 and 20, drawn in part to, and claim 18 drawn to, a compound capable of modulating the activity of the human serine protease T and to a method of use of the compound in treating a patient, classified, in the absence of a disclosure of the nature of such a compound, in class 514, subclass 1.

II. Claims 17 and 20, drawn in part to, and claim 19 drawn to, a compound capable of modulating the expression of the human serine protease T and to a method of use of the compound in treating a patient, classified, in the absence of a disclosure of the nature of such a compound, in class 514, subclass 44.

Inventions of Group I and Group II are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP §806.04, MPEP §808.01). In the instant case the different inventions are not disclosed as capable of use together and have different modes of operation, different functions, and different effects.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with Ms. Myra McCormack on August 15, 2002, a provisional election was made **with** traverse to prosecute the invention of Group I, claims 17, 18, and 20, to the extent they describe modulators of protease activity. Affirmation of this election must be made by applicant in replying to this Office action. Claims 17, 19 and 20, to the extent that they describe inhibitors of protein expression, are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Rejections - 35 USC § 101

35 U.S.C. §101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 20 is rejected under 35 U.S.C. §101 because the claimed invention lacks patentable utility.

A claimed invention must posses a specific, substantial and credible *in vitro* or *in vivo* utility, but the instant application cannot identify any specific modulator nor any specific, substantial, utility for a compound that might, were it disclosed, be used in a method of treatment of claim 20 known to the inventors at the time the application was filed. Specifically, the method of use of a modulator for *in vivo* treatment of a medical condition lacks specific utility where the specification discloses no medical condition or illness that is mediated by the disclosed human serine protease T having the amino acid sequence set forth in SEQ ID NO:7. Applicant cannot identify a modulator, a physiological substrate that the disclosed human serine protease T protease recognizes and cleaves *in vivo*, nor even indicate its specific cellular or extracellular function. While the specification proposes several organ systems, page 22, wherein medical administration of a modulator of protease activity might potentially treat unspecified, generic, disorders there is no specific utility for a claimed method absent a disclosure of which is/are the particular disease state[s] or medical condition[s] that may or may not be treated with the undisclosed modulator. A method of use of a material for further research to determine, e.g., its specific biological role, thus identifying or confirming a "real world" context for its use, cannot be considered to be a "substantial utility". *Brenner v. Manson,* 383 U.S. 519, 148 USPQ 689 (Sup. Ct. 1966). Mere allegations of a prospective, potential, utility cannot rise to the level of a credible assertion of a specific *in vivo* utility that is substantial. Indeed, the specification's diffuse assertions indicate the contrary: that Applicant knew of no specific utility for an undisclosed modulator that would permit its immediate use by the public.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. §112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 20 is also rejected under 35 U.S.C. §112, first paragraph. Specifically, since the claimed invention is not supported by either a specific asserted utility or a well established utility for the reasons set forth above, one skilled in the art clearly would not know how to use, i.e., practice, the claimed invention.

Claims 17, 18, and 20 are rejected under 35 U.S.C. §112, first paragraph, because the specification, while enabling for an assay to identify a compound capable of inhibiting the proteolytic activity of a serine protease T having the catalytic domain present in the amino acid sequence set forth in SEQ ID NO:7,

does not reasonably provide enablement for modulator compounds capable of inhibiting or augmenting the proteolytic activity of "functional derivatives" of the serine protease T having amino acid sequences that diverge from the catalytic domain of the protease comprised by SEQ ID NO:7. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

Claim 15, to which claim 17 refers, and to which claims 18 and 20 ultimately refer, was canceled with Paper No. 4, thus claims 17, 18, and 20 are construed according to the definition of a "protease T serine protease activity" provided in the paragraph spanning pages 6-7 of the specification. This rejection as it applies to claim 20 differs from the proceeding rejection of claim 20 based on the absence of any particular teaching of a disease to be treated by a modulator of protease T activity. Here claims 17 and 18 are rejected because they embrace modulators determined by assays conducted with divergent human serine proteases T wherein arbitrary assignments of any or all amino acid deletions, additions, or substitutions are made in the amino acid sequence of the human protease T catalytic domain of SEQ ID NO:7, so long as they are "functional", and claim 20 is rejected because it is a method of using a modulator determined by assays conducted with

such divergent human serine proteases T. It is agreed that assays to detect modulators conducted with a serine protease T having the catalytic domain present both in the native protease T having the amino acid sequence set forth in SEQ ID NO:7 and in the zymogen-protease T fusion protein having the amino acid sequence set forth in SEQ NO:9 are enabled by the state of the art taken together with the specification. Yet the specification does not teach one of skill in the art where, or how, the amino acid sequence of the native protease T catalytic domain comprised by SEQ ID NO:7 might be altered other than by the amino-proximal modifications of the catalytic domain If SEQ ID NO:9 introduced by Applicant's preparation of a fusion construct.

It is well settled that 35 U.S.C. §112, first paragraph, requires that a disclosure be sufficiently enabling to allow one of skill in the art to practice the invention as claimed without undue experimentation and that unpredictability in an attempt to practice a claimed invention is a significant factor supporting a rejection under 35 U.S.C. §112, first paragraph, for non-enablement. See, *In re Wands*, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988) (recognizing and applying the "*Forman*" factors). Cf., *Ex parte Forman*, 230 USPQ 546, 547 (Bd. Pat. App. & Int. 1986) (citing eight factors relevant to analysis of enablement). The standard set by the CCPA, the predecessor of the Court of Appeals for the Federal Circuit, is not to "make and screen" any and all possible alterations because a reasonable correlation must exist between the scope of guidance provided by the specification and the scope asserted in the claimed subject matter. *In re Fisher*, 427 F.2d 833, 839, 166 USPQ 18, 25 (CCPA 1970) (scope of enablement varies inversely with the degree of unpredictability of factors involved in physiological activity of small peptide hormone); see also, *Ex parte Maizel*, 27 USPQ2d 1662, 1665 (Bd. Pat. App. & Int. 1992) (functional equivalency of divergent gene products not supported by disclosure only of a single B-cell growth factor allele). The standard set by the CCPA was approved

by the Federal Circuit in *Genentech, Inc. v. Novo-Nordisk A/S*, 42 USPQ2d 1001 (Fed. Cir. 1997). Applying the "*Forman*" factors discussed in *Wands*, to the scope of the claims rejected, it is apparent that:

a) the specification lacks adequate, specific, guidance for identifying modulators by assays using altered catalytic domains of the T protease comprised by SEQ ID NO:7, other than the alteration of SEQ ID NO:9,

b) in view of the prior art publications of record herein, the state of the art and level of skill in the art do not support such alteration, and,

c) unpredictability exists in the art where no catalytic domains of related serine proteases have sustained alterations beyond that disclosed in the fusion protein having the amino acid of SEQ ID NO:9, yet retained their proteolytic activity.

The scope of the claimed subject matter embracing modulators of serine proteases having undisclosed amino acid sequences differing from the protease T catalytic domain set forth in SEQ ID NO:7, other than the modification of SEQ ID NO:9, is not supported by the specification, even if taken in combination with the teachings available in the art.

Claims 17, 18, and 20 are rejected under 35 U.S.C. §112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.

The specification provides no adequate written description of any particular compound that functions as a modulator, either as an antagonist or as an agonist, of the proteolytic activity of the disclosed human serine protease T having the amino acid sequence set forth in SEQ ID NO:7. Addressing similar claims, the U.S. District Court for the Western District of New York recently held, pages 21-22 of the slip opinion, that the written description requirement of 35 U.S.C. §112, first paragraph, cannot be satisfied by merely providing the desired function of the compound in a claim without the specification providing more detail on the compound's structure, chemical formula, chemical name, or physical properties. *University of Rochester v. G.D. Searle & Co. Inc.* (00-CV-6161L, West. Dist. NY, March 2003). "While one does not need to have carried out one's invention before filing a patent application, one does need to be able to describe that

invention with particularity" to satisfy the description requirement of the first paragraph of 35 U.S.C. §112. *Fiers v. Revel v. Sugano*, 25 USPQ2d 1601, 1605 (Fed. Cir. 1993). The instant specification provides no identifying characteristics of a claimed modulator of serine protease T protease activity and the specification's treatment of the claimed modulator, and methods of treatment using a modulator, are considered to be entirely prospective where there is no description of its "relevant identifying characteristic[s]" such that the public could know that the inventor possessed the invention at the time an application for patent was filed, rather than by a mere "result that one might achieve if one had made that invention". *University of California v. Eli Lilly*, 119 F.3d 1559, 1568, 43 USPQ2d 1398, 1406 (Fed. Cir. 1997).

The following is a quotation of the second paragraph of 35 U.S.C. §112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 17, 18 and 20 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 17, 18 and 20 are indefinite in their dependency from a cancelled claim, claim 15, and rewriting claim 17 in independent form will overcome this aspect of the rejection. In so doing, Applicant is encouraged to avoid reintroducing the term "protease T protein activity" present in the cancelled claim 15 because the ambiguity of this term makes it the basis for rejections under 35 U.S.C. §112, second paragraph, in copending, commonly-assigned, applications by the co-inventors named herein due to its.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. §102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 17, 18 and 20 are rejected under 35 U.S.C. §102(b) as being anticipated by Mallamo et al., U.S. Patent No. 5,658,906, made of record herewith.

Mallamo et al. specifically disclose the chemical structures and methods of preparation of several serine protease inhibitors and the relative inhibition of several serine proteases by their inhibitors, cols. 7-33 and Tables 1B and 1C. Mallamo et al. further disclose, in the paragraph spanning cols. 1-2, that specific serine proteases are associated with specific diseases as well as, cols. 5-6, the formulation of pharmaceutical compositions comprising their several serine protease inhibitors and administration of pharmaceutical compositions comprising compounds of their invention "to a mammal, including a human, as a medicament or pharmaceutical agent." In the absence of a disclosure of any particular modulator of human serine protease T activity in the instant specification and in view of the description of the claimed subject matter in the specification only by its intended effect, the disclosure by Mallamo et al. of a variety of serine protease inhibitors – which modulate serine protease activity by antagonizing proteolysis – and methods of treatment of specific diseases is considered to anticipate the subject matters of claims 17, 18 and 20.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William W. Moore whose telephone number is 703.308.0583. The examiner can normally be reached between 9:00AM-5:30PM EST. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ponnathapura Achutamurthy can be reached at 703.308.3804. Further fax phone numbers for the organization where this application or proceeding is assigned are 703.308.4242 for regular communications and 703.308.0294 for After Final communications. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703.308.0196.

William W. Moore
July 3, 2003